STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR
GOVERNOR

EDWARD O SULLIVAN
COMMISSIONER

January 28, 1999

Mr. Emil Klawitter
Code 1823 EK
Department of the Navy, Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19113-2090

Re: Draft 1997 Annual Report, Monitoring Events 8-10,
Sites 1,3, and Eastern Plume, June 1998,

Dear Mr. Klawitter:

The Department of Environmental Protection (DEP or Department) has reviewed the Draft 1997 Annual Report, Monitoring Events 8-10, Sites 1,3, and Eastern Plume, dated June 1998, (received November 1998) prepared by EA Engineering, Science and Technology. Based on that review the Department has the following comments and issues.

General Discussion

1. Streams should be labeled on all base maps used in this report.
2. On VOC maps, potentiometric contours make it hard to distinguish VOC contour. The Department suggests making VOC contours substantially heavier, as they are the main theme.
3. In Appendix A data tables, organized by monitoring event number, most tables include data for Event 11, which occurred in 1998. Event 11 data must be eliminated, as it would be confusing to the public, and the concentrations infrequently contradict trends described for the 1997 data.
4. The Department has commented several times during the past year that the makeup of the background groundwater well monitoring network is flawed by the inclusion of MW-801 and MW-211B. Data from these two wells is the reason as used in stating that monitoring results do not exceed background levels. This issue must be resolved prior to finalization of this report.
5. In many sentences the verb "were reported" is not the appropriate wording. An example is "Eight VOC were reported at concentrations above corresponding State MEGs..." on page 3-9. Technically, the Navy is correct in that the laboratory reports the results to the consultant writing the document. However, the public will be think that it is the Navy doing this reporting (not the laboratory) and may think that some detections have been "observed" but are not being reported. The Department suggests substituting "were detected".

Specific Comments

6. Long-Term Monitoring Program, Purpose, 1.2.1, page 1-1, 2nd sentence:

"Execution of the LTMP will enable the Department of the Navy to collect data in order to conduct a 5-year review, which is a required analysis of newly promulgated or modified federal and state regulations to determine if they challenge the protectiveness of the implemented remedial strategy."

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-1507

web site: www.state.me.us/dep

The above sentence provides a very narrow view of the LTMP. The Department recommends the following language: *Under the LTMP, data will be collected to assess the effectiveness of the remedial actions. Five-year reviews are performed to ensure that the remedial action remains protective of human health and the environment. As part of the 5-year reviews, an analysis of newly promulgated or modified federal and state regulations is performed to determine if the current implemented remedial strategy is adequate for full compliance with all the changes in the federal and state regulations.*

7. Long-Term Monitoring Program, Purpose, 1.2.1, page 1-1, 3rd sentence:

   "Although routine monitoring was specified for up to 30 years, the 5-year review evaluation, scheduled for the year 2000, will provide a basis for continued sampling and proposing refinements/alterations to the monitoring program or remedial activity, if appropriate."

   On the basis of recent MEDEP comments, this sentence needs to be rephrased. We suggest the following: *"Although routine monitoring will continue as long as it is needed, 5-year reviews will begin in the year 2000 and will provide a forum for evaluating and implementing modifications to the monitoring program or current remedial activity, as appropriate."*

8. Long-Term Monitoring Program, Objective, 1.2.2, page 1-2, second bullet:

   "Evaluate the effectiveness of the ground-water extraction system and other *in situ* remedial action by comparing ground-water..."

   Replace the word "comparing" with *"assessing trends in"*.

9. Long-Term Monitoring Program, Objective, 1.2.2, page 1-2, third bullet:

   Rewrite to read: *"Analyze the effective capture zone of the ground-water extraction system at Sites 1 and 3 and the Eastern Plume to determine if hydraulic control of the plumes is being maintained."*

10. Long-Term Monitoring Program, Objective, 1.2.2, page 1-2, fourth bullet:

    "Evaluate the effectiveness of the landfill cap and slurry wall by comparing chemical quality..."

    Replace "comparing" with *"evaluating trends in "*

11. Long-Term Monitoring Program, Objective, 1.2.2, page 1-2, last para:

    This paragraph is not directly related to "Objective" [which should be plural]. MEDEP suggests using a new subheading titled *"Regulatory Requirements"*.

12. Background Wells, 1.2.3, page 1-2:

    a. Add the following to the end of the first sentence: "(see Figure 1-1 for locations).

    b. Also, no data or discussion of background wells was found in the reference "ABB-ES 1994". Please present more information here, or reference other subsections within the current report.

13. Figure 1-2:

    a. To avoid confusion the title for figure 1-2 should be in larger font, put in bold and put before the source information. The source information should be reduce in font size since is secondary information.

    b. The boundary information of the limits of the Eastern Plume should labeled the same as the figure in the 1998 ROD (approximate limit of Eastern Plume, 1990)

14. Eastern Plume, 2.1.2, page 2-1, first sentence:

    Delete ",which have impacted ground water", and add the appropriate report reference.

15. Eastern Plume, 2.1.2, page 2-1:

    This description is very limited. To be minimally acceptable, the southern boundary needs to be addressed.

16. Geology, 2.2, page 2-1, 1st sentence:

    "The stratigraphy of the eastern portion of NAS Brunswick is comprised of overburden sand, silt, and clay units overlying a moderately sloping bedrock surface."

    The surface of bedrock is also quite undulating, and this should be added either here, or in the fourth bullet on page 2-2.

17. Geology, 2.2, page 2-2, third bullet:

    a. This report later mentions that the Eastern Plume largely occupies troughs in the clay surface (see 2.3.2). The Department is not sure that "troughs" is more appropriate than *"depressions"*, but the feature must be discussed here if it is referenced later in the report.

    b. The thickness of the clay south of Mere Brook has been depicted on cross-sections as roughly 20 feet, using seismic line 10 and the log of CP-120 in the RI report. The bullet needs to be revised to reflect the information known about this area.

    c. Most clays are characterized as having very low permeability. The use of "low permeability" should be accompanied by an order of magnitude value.

18. Geology, 2.2, page 2-1, fourth bullet:

    The Cape Elizabeth Fault is shown by geologic maps of Maine to run northeast-southwest beneath the eastern part of the Eastern Plume area. This is a feature of regional extent, and should have caused a band of well-fractured bedrock. To complete the geologic setting, the fault must be mentioned even though its influence on contaminant distribution is unknown.

19. Shallow and Deep Ground-Water Flow, 2.3.2, page 2-3, 1st para:

    "Shallow ground water generally flows east-southeast, and is influenced by Mere Brook and its tributaries."

    This direction of flow is directly towards Merriconeag Stream. Mere Brook, which runs eastward between Sites 1 & 3, and Site 2, is a drain on the aquifer's southern boundary of the southern lobe of the Eastern Plume. Also, please replace the term "influenced by" with *"partially discharges to"*.

20. Shallow and Deep Ground-Water Flow, 2.3.2, page 2-3, 2nd para:

    "In general, a comparison of shallow and deep potentiometric elevations indicates a downward flow gradient is present..."

    The lay person could well be mislead into thinking that groundwater flows vertically. It is important to portray *"a downward component of movement within a primarily horizontal flow field"*.

21. Remedial Activities, 2.5, page 2-4, 2nd para:

    "The two extraction wells located within Sites 1 and 3 landfill (EW-6 and EW-7) ran intermittently from 1 to 18 November 1997 and were permanently deactivated on 19 November 1997 after they had completed their design goal of lowering the water table elevation to the level of the waste."

    There are several problems with this statement. Although the wells were operated intermittently in November, they had operated more or less continuously for two years. The way it is stated makes it appear as the dewatering was accomplished in one month. Secondly, the word "permanently" must be removed, as it is possible that pumping may need to be resumed at some future time. Lastly, in Subsections 3.2.2.3 and 4.1 there is inconsistency as to whether the water level was lowered to the lowest level of the waste, particularly at MW-234R. Please rectify these problems.

22. Background Ground-Water Concentrations, 2.6, page 2-4:

a. The schedule for sampling background wells has not been discussed, therefore the reader may wonder why only Event 9 data are presented.

b. "Results of the background ground-water sampling indicate that concentrations of three inorganics (aluminum, lead, and manganese) have been reported at concentrations above corresponding State of Maine Maximum Exposure Guidelines (MEG) and/or Federal Maximum contaminant Levels (MCL) for these analytes."

Over the past year, DEP has pointed out that a background well should not have an exceedence of the lead standards. Our previously expressed position is that MW-801 should be eliminated from the background well monitoring network. Furthermore, MW-211B should also be eliminated as it is located within the slurry walls of Sites 1 & 3 landfill. See general comment No. 4.

c. This short paragraph should be expanded, with the discussion tied to subsection 1.2.3. (Definition of Shallow and Deep Monitoring Wells).

23. Summary of Constituents of Concern for Sites 1 and 3 and the Eastern Plume, Table 2-1:

The following improvements need to be made for clarity:

a. Add column lines (separators) to tie header to bottom of table information.

b. In front of "Sediment" (3rd column header) add *"Stream"*.

c. In front of "TARGET ANALYTES" add *"INORGANIC"*.

24. Summary of Shallow and Deep Wells and Piezometers at Sites 1 and 3, Table 2-2:

EW-6 and EW-7 are screened in the upper stratified unit, and therefore, should be moved into the upper part of the table.

25. Summary of Shallow and Deep Wells and Piezometers at Eastern Plume, Table 2-3:

a. A few of the listed wells are finished in bedrock, and do not belong under a heading that reads "Deep Wells (lower semi-confined coarse sand unit)". Please separate the bedrock wells out under a separate heading.

b. MW-1104 is a shallow well that is erroneously placed in the deep well table. Please correct.

26. Summary of Analytical Results for Ground-water Samples Collected during Monitoring Event 9 at Background Monitoring Wells, Table 2-4:

Data for MW-211B and MW-801 should be eliminated from all background tables, figures, and calculations. See General Comment No. 4.

27. Effect of Remedial Activities on Potentiometric Surface, Sites 1 and 3, 3.2.2.3, page 3-3, bottom para:

"Comparison of water elevations in well MW-2101, located outside the confines of the slurry wall, and well MW-211B, located within the confines of the slurry wall, indicated an average potentiometric head difference of 10.21 ft present between these wells, as compared to an average potentiometric head difference of 8.28 ft in 1996."

This statement implies that the landfill cap and slurry wall has only caused a 2 foot decline within the slurry wall at the northern end! Whereas, individual graphs of water level changes for the shallow long-term monitoring wells at the northern end (MW-201R and MW-211B) show a 4 to 5 foot decline. The actual measured changes in head between pre-slurry wall and the present is also a function of well location within the groundwater flow field. The above comparison should be deleted, and actual well hydrographs used to support the effect of the cap and slurry wall.

28. Sites 1 and 3, 3.2.2.3, page 3-4, 2nd para:

a. "Extraction well yield from EW-6 and EW-7 had been limited to less that 1 gpm during 1997."

It is important to document what the limiting factor to increasing pumping rates beyond the 1 gpm stated was (low heads in the shallow wells?). Please clarify.

b. "These extraction wells were considered to have fulfilled their design goal and, therefore, extraction from these wells was terminated in November 1997 after discussions with Restoration Advisory Board members."

The Department recommends the following language: *These extraction wells were considered to have fulfilled their design goal and, therefore, extraction from these wells was suspended in November 1997 after discussions with Restoration Advisory Board members. However these wells will continued to be gauged for water level data.*

29. Eastern Plume, 3.2.2.3, page 3-4, 2nd sentence:

a.The Department recommends changing "more limited" to *"less"*.

b. "Generally, no significant effect of ground-water extraction is noted that is likely attributable to the screening interval of the extraction wells, which intersects both shallow and deep intervals".

The Department is not sure what the Navy means by this statement. If the Navy meant to suggest that the dual layer screening has had no significant effect on drawdown distribution and magnitude in the shallow and deep layers, the Department would disagree. The likelihood of remedial pumping impacting the upper layer more than the lower layer is why we thought the Navy was proposing to update the groundwater model as recommended on page 4-12 of this report. Please clarify or revise this statement as appropriate.

30. Description of Ground-Water Monitoring and Sampling Program, 3.3.1, page 3-5, bottom of 1st full para:

"Effective November 1996, cyanide analysis were removed from the analytical program."

Cyanide was not removed from the background sampling for Event 9. Please reconcile this difference with an explanation in the text.

31. Description of Ground-Water Monitoring and Sampling Program, 3.3.1, page 3-5, bottom of 2nd para:

"Table 3-9 summarizes the analytical results for samples collected at the extraction wells and ground-water treatment plant during each of the tri-annual sampling events."

The proper table reference is Table 3-11.

32. Results of Ground-Water Sampling: Sites 1 and 3, 3.3.2.1, page 3-7, 1st full para:

"Appendix A provides VOC and inorganic sample results for Sites 1 and 3 ground-water sampling points."

For clarification, please modify to read: *"Appendix A provides updated long-term monitoring program tables and graphs of VOC and inorganic sample results for Sites 1 and 3 ground-water sampling points."*

33. Results of Ground-Water Sampling: Sites 1 and 3, 3.3.2.1, page 3-8, last bullet:

"Note that reported concentrations of manganese and aluminum in background ground-water samples were reported above corresponding State MEGs (summarized in Table 2-4). Therefore, elevated concentrations of these analytes attributable to natural site conditions."

The Department does not subscribe to this explanation. Please see Comments No. 4 and 22b.

34. Results of Ground-Water Sampling: Eastern Plume, 3.3.2.2, page 3-9, 2nd bullet:

VOC were not detected at MW-229B during 1997, according to Table 3-9. An apparent mix-up between the A and B well sample results was pointed out to the Navy's consultant via phone, and repeated in DEP's comments for Monitoring Event 10, dated June 9, 1998, comment 26. It is reasonable that all detection's at the MW-229 well pair should be in the deeper A well.

Please delete MW-229B from this list, and change the number of sampling locations from 13 to 12. Also, correct the MW-229B graph in Figure 3-21.

MW-229A graph in Figure 3-22, two graphs and supporting table in Appendix A.

35. Results of Ground-Water Sampling: Eastern Plume, 3.3.2.2, page 3-9, bottom paragraph:

A statement similar to that recommended in Comment 32 needs to be added to this paragraph.

36. Shallow Ground Water, 3.3.2.2, page 3-10, 4th bullet:

Delete this bullet because MW-229B hits are erroneous (also see comment 34) and MW-207B has not had a COC detection since Event 3.

37. Shallow Ground Water, .3.2.2, page 3-10, 5th bullet:

Please make the second sentence in this bullet a new paragraph.

38. Deep Ground Water, 3.3.2.2, page 3-11, 2nd paragraph and 1st bullet:

MW-206A is not located any nearer EW-1 than to EW-2, or practically speaking, EW-3. Therefore, the decline in VOC at MW-206A can not be directly linked to EW-1, and is more likely due to EW-2 and EW-3, both of which pumped twice the volume of groundwater in 1997 as EW-1 pumped (see Table 3-1). Therefore, the Department recommends deleting MW-206A from trend discussions for EW-1.

39. Deep Ground Water, 3.3.2.2, page 3-11, 2nd bullet:

Change the word "constituent" to *"consistent"*.

40. Deep Ground Water, 3.3.2.2, page 3-11, 3rd bullet:

The Department interprets the MW-205 graph in Figure 3-22 differently, and recommends the following: *"MW-205 showed a general decrease in total VOC and Trichloroethene between Monitoring Events 1 through 7, with little fluctuation thereafter."*

41. Deep Ground Water, 3.3.2.2, page 3-12, 1st bullet:

The Department interprets the graphs of MW-306 and MW-NASB-212 in Figure 3-23 differently, and recommends the following description: "*A decreasing trend of total VOC and TCE concentrations is noted at wells MW-306 and MW-NASB-212 through Event 7, when relative stability begins.*"

42. Deep Ground Water, 3.3.2.2, page 3-12, 2nd bullet:

The Department interprets the graphs of P-105 and P-106 in Figure 3-23 differently, and recommends the following description: *"Relatively consistent concentrations of TCE were noted at P-105 and P-106 even though total VOC concentrations varied greatly between monitoring events, but both increased or decreased together."*

43. MW-311 Ground-Water Extraction, 3.3.2.2, page 3-12, 2nd para:

"A slightly decreasing but stable trend was reported from 1 July through 3 November 1997."

This statement does not accurately describe the changes in concentrations in MW-311 measured during the pilot test. The suggested replacement is: *"Initially, a strong decreasing trend occurred in July, followed by a relatively stable trend from August through November 1997. Concentrations of total VOC declined from 15,000 to 7500 µg/L, and TCE declined from 11,000 to 6000 µg/L."*

44. Background Monitoring Wells, 3.3.2.3, page 3-12:

a. To our knowledge, the Department did not select, or formally approve of the nine basewide background monitoring wells. As expressed in earlier our comments, two of these wells do not fit the requirements of a background well (Also see Comments No. 4 and 23b.)

b. The last sentence refers to exceedences of MEGs for aluminum and manganese. For unknown reasons, the exceedence by lead in MW-801 was omitted. Please revise the statement to include lead.

45. Sentinel Monitoring Wells, 3.3.2.4, page 3-13, 1st para:

For reasons previously given, MW-311 must be removed from this category of monitoring wells. Also, it is noted that MW-313 has had repeated detections of 1,1-DCA, although concentrations have been less than 1 µg/L. The Department views this well as borderline in status. MW-308 is missing from this list, and appears to meet the requirement of a sentinel well.

The first bullet that follows will require modification, as noted above and the second bullet should be moved under the subsection "MW-311 Ground-Water Extraction".

46. Frequency of Analytical Detections in Ground Water, 3.3.2.5, page 3-13:

a. This subsection detracts from understanding the chemical distribution of the Eastern Plume, and should be deleted or extensively modified. Because the plume has been mapped and appears to remain fairly consistent areally over time, a frequency of detection analysis at this point is valuable only if individual wells are addressed separately (i.e., TCE has been present in a particular well 60 percent of the samplings).

b. In the second paragraph, correct "Tables 3-13 through 3-15" to read *"Tables 3-13 and 3-14"*.

47. Ground-Water Extraction and Treatment System, 3.3.2.6, page 3-14, 1st para:

"It should be noted that extraction wells EW-6 and EW-7 ran intermittently from 1-18 November 1997 and were permanently deactivated on 19 November 1997."

See comment No. 21 above.

48. Description of Surface Water, Sediment, and Seep Sampling Program, 3.4.1, page 3-15, 1st para:

Reference to Figure 3-1, which shows the locations of sampling points for the above media, should be given here.

49. Description of Surface Water, Sediment, and Seep Sampling Program, 3.4.1, page 3-15, 2nd para:

All table numbers are incorrect. Also, add a statement referencing Appendix A.

50. Leachate Station Seeps, 3.4.2.3, page 3-16, 1st para;

"No discernible trends were observed in VOC concentrations in seeps during 1997."

The seep data table in Appendix A shows that 1,4-dichlorobenzene and vinyl chloride in SEEP-04 samples from Events 5 to 9 (no sample for Event 10) has been steadily decreasing and increasing, respectively. This exception should be pointed out.

51. Leachate and Station Sediment, 3.4.2.4, page 3-17, 1st full para:

"Mercury was reported above the cleanup goal noted in Sites 1 and 3 Record of Decision of 1.0 mg/kg during Monitoring Event 9 at 2 locations (LT-2 and LT-4)."

Please add that mercury was also above this cleanup goal at LT-4 for Event 10.

52. Description of the Landfill Gas Monitoring Program, 3.5.1, 2nd para:

The table reference should be Table 3-19 in the last sentence.

53. Results of the Landfill Gas Monitoring and Cap Inspection, 3.5.2, 1st para:

In Table 3-19, the units of Pressure is given as "(in. H_20)" for the 19 march 1997 data, but the units are "(in. Hg)" for the 7 July and 19 November data sets. The July data have readings near 30 whereas the other dates have readings of <0.01 and < 1.0U.

The readings and units of measurement must be presented in a consistent format.

54. Ground-Water Extraction and Treatment System Performance, 4.1, page 4-2, 3rd para:

"...that ground-water elevations had been lowered to the lowest landfill waste elevation;..."

Please see comment 21 above.

55. Ground-Water Flow, 4.2.1, page 4-3, 5th bullet:

"The average difference in potentiometric head at well pairs was +1.77 ft between deep and shallow wells."

Is this figure derived from all well pairs at Sites 1 & 3 and the Eastern Plume; and for all monitoring events (8-10)? The basis should be given. It would be more informative if differences in heads were graphed for each of the well pairs, instead of presenting an overall average difference.

56. Effects of Remedial Measures - Sites 1 and 3, 4.2.2, page 4-3, 1st bullet:

This comparison does not have much value relative to trends of water level declines that are graphed for the key monitoring wells. See comment 26 above. Delete this bullet, as the next bullet accomplishes the objective better.

57. Effects of Remedial Measures - Sites 1 and 3, 4.2.2, page 4-4, top bullet:

"In November 1997, water elevations measured inside the Sites 1 and 3 were 0.8 ft above the lowest reported depth of waste material (measured at well MW-234R)."

This information is somewhat contradictory to earlier statements that say water elevations were lowered to the bottom of the waste. In that the above is a more accurate statement, the former statements should be corrected. See comment 21 above.

58. Effects of Remedial Measures - Eastern Plume, 4.2.3, page 4-4, 2nd bullet:

"Additional limited effects were noted in the potentiometric surface data in the deep interval, likely due to the screening of the extraction wells across the shallow (more transmissive) interval and the deep (less transmissive) interval."

The Department recommends the following language: *"Smaller drawdowns in the deep interval than in the shallow interval were interpreted from the potentiometric surface data. This results is likely due to the screening of the extraction wells across both the shallow (more transmissive) interval and the deep (less transmissive) interval."*

59. Inorganic Compound Concentrations and Distribution, 4.3.1, page 4-5, 2nd bullet:

The Department disagrees with this statement. See Comment No. 4.

60. Sites 1 and 3, Background Well Inorganic Concentrations, 4.3.1, page 4-5, only bullet:

See Comment No. 4.

61. Volatile Organic Compound Concentrations and Distribution, 4.3.2, page 4-6, 5th bullet:

"...and the second area is located in the southern portion of the Eastern Plume, in the vicinity of extraction wells EW-1, EW-2, and EW-3."

The above wording gives the impression that the plume is present only around (in the vicinity of) these wells. The Department proposed the following modification and new sentence: *"...and the second area is located in the southern portion of the Eastern Plume, roughly encompassing wells EW-1, EW-2, EW-3, and MW-311. At the present time this area is poorly bounded by well data on the southeast edge, however, new wells are being installed to fill this gap."*

62. Volatile Organic Compound Concentrations and Distribution, 4.3.2, page 4-6, 7th bullet:

"The areas with reported total VOC concentrations of 100 µg/L and greater appear to be situated within clay trough underlying the Eastern Plume."

See comment 17 above.

63. Volatile Organic Compound Concentrations and Distribution, 4.3.2, page 4-6, bottom bullet:

"At monitoring points MW-306, MW-NASB-212, and P-105, a generally increasing trend in total VOC or trichloroethene concentrations was observed during 1995, although a decreasing trend was observed during 1996 and 1997 sampling events."

For the purposes of the 1997 Annual Report, the data and graphs presented can be more appropriately summarized as follows: *"At monitoring points MW-306, MW-NASB-212, and P-105, the decreasing trend in total VOC or trichloroethene concentrations documented by the 1996 data continued during 1997."*

64. Eastern Plume, Volatile Organic Compound Concentrations and Distribution, 4.3.2, page 4-7, 1st bullet:

The Department maintains that MW-311 is an interior plume well, not a perimeter well, regardless of its location with respect to other monitoring wells. This terminology must be adopted in this report. Also see comment 46 above.

65. Surface Water, 4.4.1, page 4-7, 1st bullet:

"At Sites 1 and 3, no VOC were detected in surface water samples,..."

The Department recommends that this phrase be rewritten as: *"Near to and downstream of Sites 1 and 3, no VOC were detected in Mere Brook water samples,"*

66. Summary of Landfill Inspection and Monitoring Program, 4.5, page 4-9, 2nd bullet:

"Elevated carbon dioxide levels and depleted oxygen content in landfill gas were..."

According to Webster's dictionary, "depleted" means to exhaust or empty, which did not occur to the oxygen levels in landfill gas. The Department recommends using *"reduced oxygen levels".*

67. Recommendations, Ground-Water Sampling Program, 4.6, page 4-10, top of page:

Isn't the new gauging program to include EW-6 and EW-7? (See the January 15, 1999 letter from the Navy to EPA and DEP regarding Site 1 &3 Water Level Management.) Please recheck and correct as necessary.

68. Recommendations, Ground-Water Sampling Program, 4.6, page 4-10, 2nd bullet:

At the request of DEP, the Navy agreed to retain MW-224 within the sampling program. (See Response to Maine Department of Environmental Protection Comments on Data Quality Objectives Meeting Minutes 18-20 May, response 14) Please remove this well from this list.

69. Recommendations, Ground-Water Sampling Program, 4.6, page 4-10, 3rd bullet:

One additional installed monitoring well (the new shallow well at MW-311) is not mentioned, and therefore, the second sentence should read: *"...6 additional monitoring wells are recommended to be installed:"*

Please describe the missing well and its objectives.

70. Recommendations, Surface Water/Sediment/Leachate Seep, 4.6, page 4-10, 1st bullet:

While the Department has agreed to drop the seep 2 sampling location from the Long Term Monitoring Plan it was our understanding that the seep would be sampled if it was flowing. Therefore this qualifier needs to be added to this statement.

71. Recommendations, Surface Water/Sediment/Leachate Seep, 4.6, page 4-11, 2nd bullet:

The Department continues to disagree with the Navy's proposal to drop all sediment sampling for the reasons stated in our comments (dated December 17, 1998) on the proposed draft Long Term Monitoring Plan for sites 1, 3 and the Eastern Plume.

72. Recommendations, Extraction System Refinement, 4.6, page 4-12, 1st bullet:

The Department fails to see how additional lithologic data at the extraction wells will help assess whether pumping from the deep interval only will enhance VOC removal. It seems apparent from the potentiometric contour maps that shutting clean water from the shallow interval into the wells is bound to have a beneficial effect. This recommendation must be discussed at a RAB meeting, prior to any implementation.

73. Recommendations, Extraction System Refinement, 4.6, page 4-12, 3rd bullet:

The Department supports the recommendation for a refinement of groundwater flow modeling of the Eastern Plume including Sites 1 and 3. However, until the VOC concentrations become much reduced by continued remedial pumping, it is difficult to conceive of another remedy that will effectively reduce the large mass of contamination remaining in the groundwater. It is likely that the results from a comprehensive modeling effort will lead to significant modifications to the current extraction well system.

74. Recommendations, Additional Data Collection, 4.6, page 4-12, bottom bullet:

The Department does not believe that the Eastern Plume is a candidate for monitored natural attenuation without substantial reduction of contaminant concentrations. The Department views monitored natural attenuation as a remedial approach that might be useful once the hot spots of the solvent plume are remediated through the pump and treat process. The Navy has just begun to address the most contaminated part of the plume with the June 1998 startup of EW-2A. Additionally, the currently mapped expanse of the Eastern Plume has yet to be proven as valid to the regulatory community. Nevertheless, it could well be prudent for the Navy to begin collecting specific data types not now available that might be used in the future to demonstrate the potential for moving to a natural attenuation "finishing remediation" at this site. We look forward to future discussions of this topic.

75. Appendix A, Graphs:

A number of multi-constituent graphs show a symbol (e.g., ovals) that are used for two constituents on the same graph. Upon close scrutiny, it appears that the connecting line for one of these constituents is supposed to be bold, but is not in many places. For example, SED-06 for Sites 1 and 3 show both copper and vanadium as ovals with the same weight line in the legend. Without going to the tables, it can not be determined which graph line is copper and which is vanadium.

These graphs are very helpful, and their readability is important. Please review all graphs and remedy this problem where it appears.

Thank you for the opportunity to review this report. If you have any questions or comments please call me at (207) 287-7713.

Respectfully,

Claudia Sait
Project Manager-Federal Facilities
Bureau of Remediation & Waste Management

Cf: File
Larry Dearborn-DEP
Anthony Williams-BNAS
Michael Barry-EPA
Carolyn LePage-LePage Environmental
Peter Nimmer-EA
Susan Weddle-BACSE